



UNITED STATES PATENT AND TRADEMARK OFFICE

aw

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 09/884,283 | 06/19/2001 | John Gural | APP 1396-US | 3899 |
| 7590 | 02/10/2004 | | EXAMINER | |
| Vincent Smeraglia, Esq. Rutgers University ASB III 3 Rutgers Plaza New Brunswick, NJ 08901 | | | SINES, BRIAN J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1743 | |

DATE MAILED: 02/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,283

Applicant(s)

GURAL ET AL.

Examiner

Brian J. Sines

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5 is/are rejected.
- 7) ☒ Claim(s) 2-4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

Art Unit: 1743

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "electrically conductive current collector members" in line

3. There is insufficient antecedent basis for this limitation in the claim.

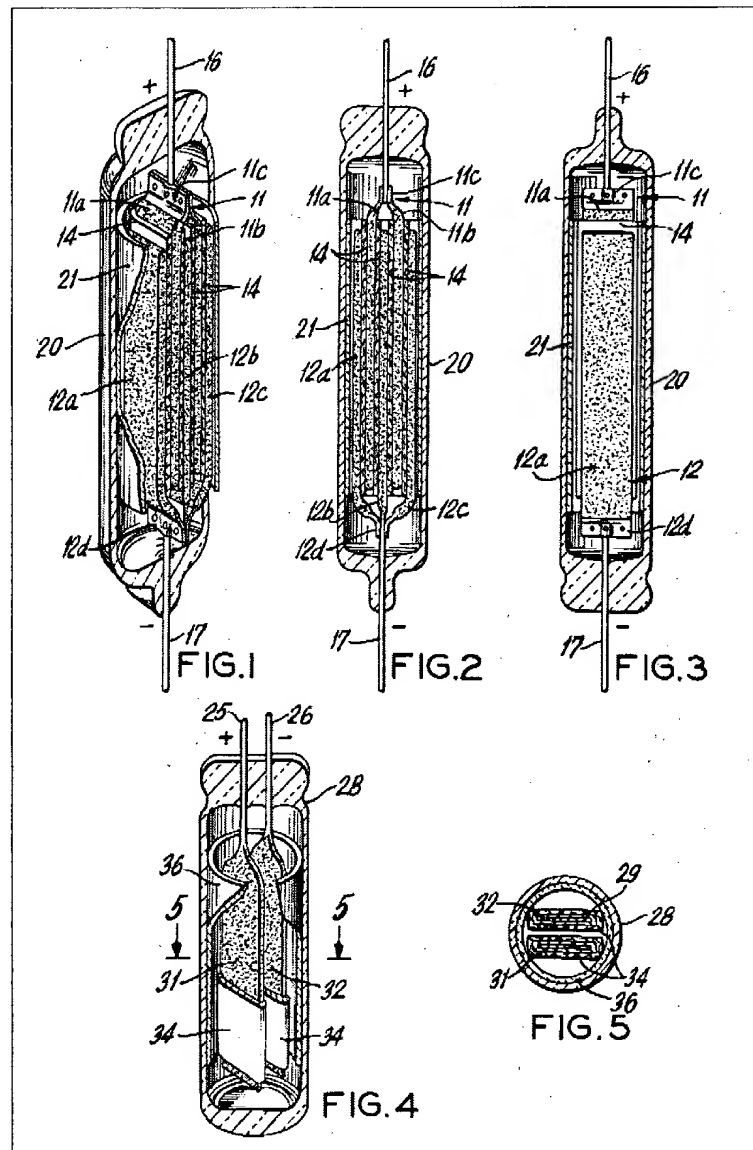
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Sugalski (U.S. Pat. No. 4,186,246). Sugalski teaches a hermetically sealed electrochemical storage cell apparatus. The apparatus comprises a means (glass casing 20) hermetically enclosing combined anode and cathode electrodes (11 & 12), a separator (14) and electrolyte cell components (*e.g.*, cell terminal conductors 16 & 17, electrolytic liquid comprising KOH or electrolyte barrier wrapping 21) in isolation from ambient atmosphere, wherein the enclosing means (20) comprises essentially an integral x-ray transmissive glass window (see col. 1, lines 1 – 68; col. 4, lines 1 – 65; figures 1 – 5).



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

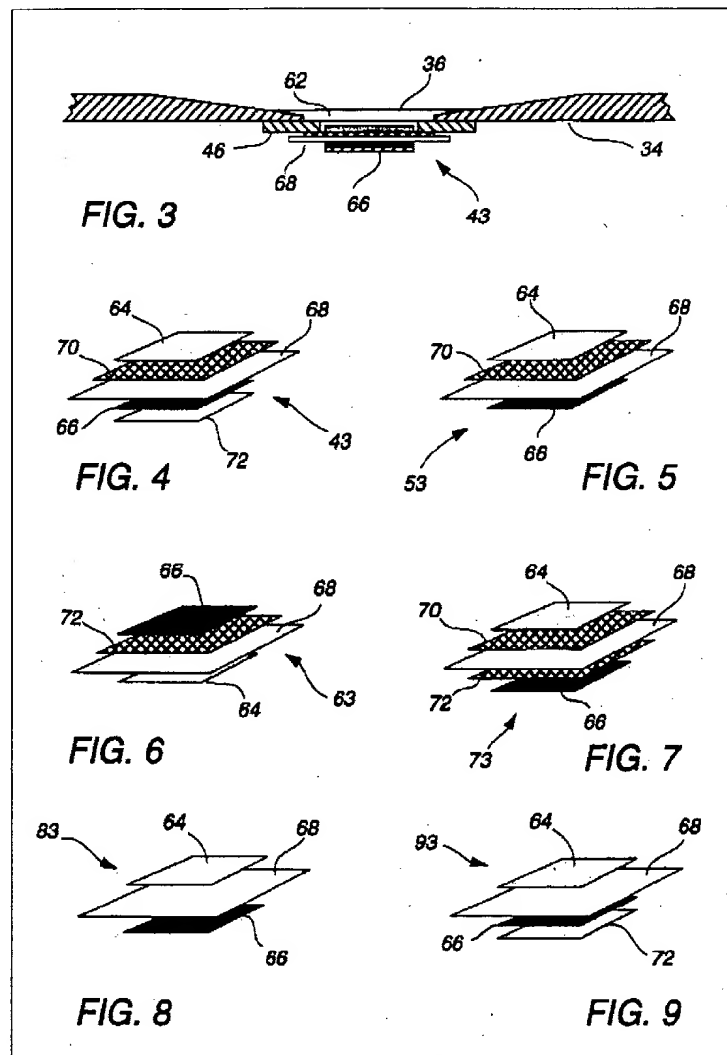
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1743

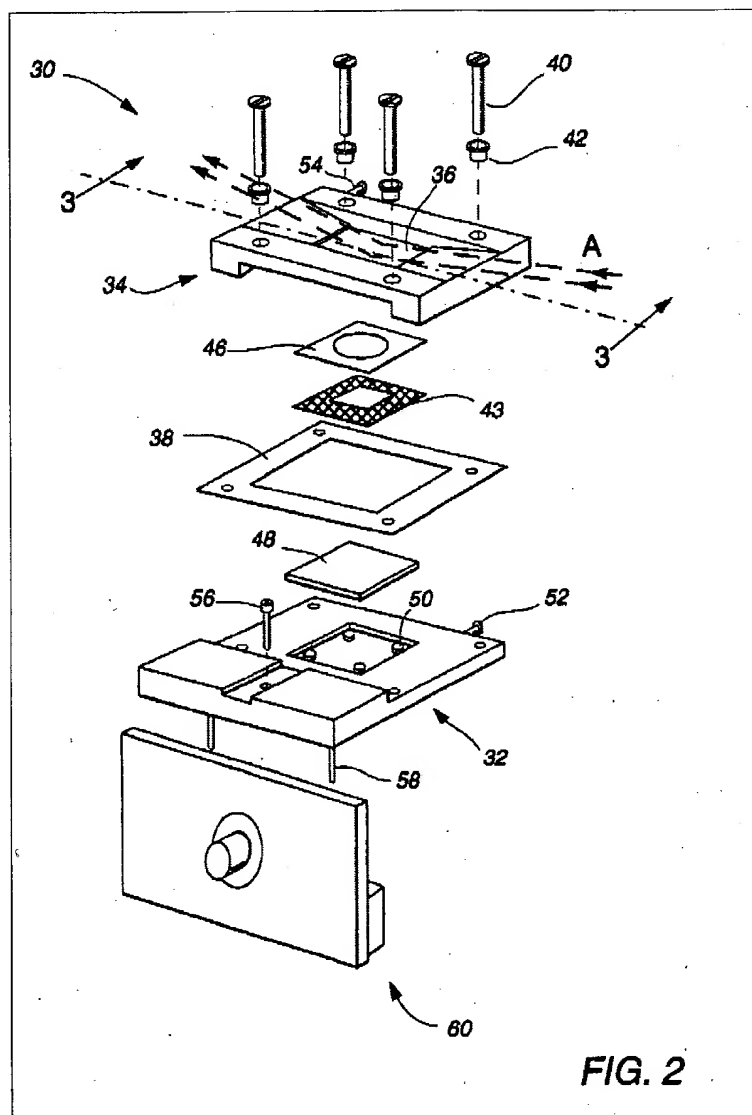
The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amatucci *et al.* (U.S. Pat. No. 5,635,138 A) in view of Sugalski (U.S. Pat. No. 4,186,246). Amatucci *et al.* teach an apparatus for use in the *in situ* x-ray study of electrochemical cells. The rechargeable battery cell apparatus (43) comprises a positive electrode (64) and a negative electrode (66), an electrolyte/separator element (68) disposed between the two electrodes, and a current collector element (70) (see col. 7, lines 8 – 58; figures 3 – 9).



Amatucci *et al.* teach that the battery (43) is placed in the enclosure of cell holder (30), wherein the holder further comprises an x-ray transmissive window member (beryllium window 36) (see col. 6, lines 36 – 64; figure 2).



Amatucci *et al.* is silent to the specific teaching of hermetically sealing the apparatus components. As discussed above, Sugalski teaches a hermetically sealed electrochemical storage cell apparatus. Sugalski teaches that hermetically sealed or permanently fluid tight galvanic cells of the rechargeable type are in wide use (see col. 1, lines 1 – 24). Consequently, a person of ordinary skill in the art would have recognized the benefits and suitability of incorporating a hermetically sealed battery cell, as taught by Sugalski, with the electrochemical cell apparatus, as taught by Amatucci *et al.*, for the intended purpose of facilitating battery cell life and

Art Unit: 1743

performance via the incorporation of an effective hermetic seal (see MPEP § 2144.07).

Furthermore, the Courts have held that the prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (see MPEP § 2143.02). Accordingly, since Sugalski recognizes that the loss of electrolyte fluid in electrochemical cells is one of the most important factors of cell longevity and is a direct function of the effectiveness of the seal between parts of the cell casing, a person of ordinary skill in the art would have had a reasonable expectation of success of incorporating a battery cell enclosed by a hermetically sealed enclosure in order to prevent cell leakage and thereby increase battery cell performance (see col. 1, lines 1 – 50). Therefore, it would have been obvious to a person of ordinary skill in the art to provide an apparatus for *in situ* study of electrochemical cells, wherein the apparatus comprises a means for hermetically sealing and enclosing combined electrodes, a separator and electrolyte cell components in isolation from ambient atmosphere, wherein the enclosing means comprises an integral x-ray transmissive window member situated to allow incidence therethrough of radiation upon an electrode member site under study.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amatucci *et al.* in view of Sugalski, as applied to claim 1 above, and further in view of Gozdz (U.S. Pat. No. 6,413,667 B1). Amatucci *et al.* teach that the rechargeable battery cell structure (43) is configured by means of the lamination of electrode and electrolyte/separator cell elements, which are individually prepared, by coating, extrusion, or otherwise, from compositions comprising PVDF copolymer materials (see col. 7, lines 30 – 35). The cell assembly is formed via lamination of the component cell elements into a unitary flexible battery cell structure (see

Art Unit: 1743

col. 7, lines 48 – 58). Amatuucci *et al.* and Sugalski are both silent to the specific teaching having an enclosing means, which comprises an envelope of polymeric sheet material. Gozdz teaches a flat rechargeable electrochemical cell, wherein the cell structure is packaged in a hermetically sealed multilayer foil/polymer envelope (see col. 9, lines 46 – 62). Consequently, a person of ordinary skill in the art would have recognized the suitability of incorporating a hermetically sealed battery cell using an enclosing means comprising a polymeric envelope, as taught by Gozdz, with the electrochemical cell apparatus, as taught by Amatuucci *et al.* in view of Sugalski, for the intended purpose of facilitating an effective hermetic seal for the battery cell components (see MPEP § 2144.07). Therefore, it would have been obvious to a person of ordinary skill in the art to utilize a lamination fabrication process for forming the claimed apparatus structure, as suggested by Amatuucci *et al.*, and incorporating the use of a polymeric envelope sealing means for sealing the apparatus, as taught by Gozdz, in order to provide an effectively sealed battery cell structure further comprising a window, which would not be prone to leakage.

Allowable Subject Matter

Claims 2 – 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, the cited prior art neither teach or fairly suggest that the apparatus, as taught by either Sugalski, or Amatuucci *et al.* in view of Sugalski, further comprises: a body providing a cylinder for receiving therein components of cell members; a sealing means surrounding the proximal end of the cylinder; a base plate providing a radiation access opening

Art Unit: 1743

situated adjacent the cylinder proximal end and aligned concentrically therewith and within the circumference of the sealing means; a window member being situated intermediate the base plate and the sealing means and extending peripherally beyond the sealing means; means for removably affixing the base plate to the body and compressing the sealing means against the window to form a hermetic seal therewith; an adjustable means situated at the distal end of the cylinder for applying compressive force urging the combination of cell components toward contact with the window member; and means for hermetically sealing the cylinder distal end.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Holmes teaches a hermetically sealed electrolyte battery. Kurtzweil et al. teach a hermetically sealed fused-electrolyte cell. Mitchell teaches a polymer-electrolyte cell, which incorporates the use of a hermetic polymer enclosure. Okada *et al.* teach a battery cell comprising a gasket material which hermetically seals the cell components. Tarascon teach a rechargeable battery cell comprising a conventional cell assembly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11:30 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 1743

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is not available.


Jill Warden
Supervisory Patent Examiner
Technology Center 1700